

**Montana Board of Oil and Gas Conservation  
Environmental Assessment**

**Operator:** Continental Resources, Inc.

**Well Name/Number:** Thelma 2-14H

**Location:** NENE Section 14 T25N R55E

**County:** Richland, **MT;** **Field (or Wildcat)** W/C (Bakken Horizontal)

**Air Quality**

(possible concerns)

Long drilling time: No, 30 to 40 days drilling time.

Unusually deep drilling (high horsepower rig): No, triple derrick drilling rig to drill a 19,534'MD/10,104'TVD single lateral horizontal Bakken Formation well.

Possible H2S gas production: Slight chance of H2S gas production.

In/near Class I air quality area: No Class I air quality area nearby.

Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under 75-2-211.

Mitigation:

   Air quality permit (AQB review)

  x   Gas plants/pipelines available for sour gas

   Special equipment/procedures requirements

   Other: \_\_\_\_\_

Comments: No special concerns – using triple derrick drilling rig to drill to 19,534'MD/10,104'TVD single lateral Bakken Formation horizontal well.

**Water Quality**

(possible concerns)

Salt/oil based mud: yes, oil based invert drilling fluids for drilling the intermediate 7" casing string hole. Saltwater (brine) to be used to drill the horizontal lateral. Freshwater and freshwater mud system will be used to drill the surface hole.

High water table: No high water table anticipated.

Surface drainage leads to live water: Yes, closest drainage is an unnamed ephemeral tributary drainage to Hardscrabble Creek, adjacent to the south end of this location.

Within the unnamed ephemeral drainage is a stock pond, about 1 mile to the northeast from this location. Tributary drainage intersects Hardscrabble Creek about 1.75 miles to the northeast from this location.

Water well contamination: No, closest stock water well is about 5/8 of a mile to the southeast, about ¾ of a mile to south and all other water wells are 1 mile and further from this well location. Depth of these water wells range from 20' to 340'. Surface hole will be drilled with freshwater and freshwater muds to a depth of 1800'. Surface casing will be cemented to surface from a depth of 1800'.

Porous/permeable soils: No, sand sitly clay soils.

Class I stream drainage: No Class I stream drainages in this area.

Mitigation:

  X   Lined reserve pit

  X   Adequate surface casing

  X   Berms/dykes, re-routed drainage

   Closed mud system

☐ Off-site disposal of solids/liquids (in approved facility)  
☐ Other: \_\_\_\_\_  
Comments: 1800' of surface casing cemented to surface adequate to protect freshwater zones. Reroute unnamed ephemeral drainage to go around the south edge of this location.

### Soils/Vegetation/Land Use

(possible concerns)  
Stream crossings: No, stream crossings anticipated.  
High erosion potential: Yes possible erosion, moderate cut, up to 11.4' and moderate fill, up to 16.3', required.  
Loss of soil productivity: No, location will be restored after drilling, if nonproductive. If productive unused portion of drillsite will be reclaimed.  
Unusually large wellsite: No, 500'X270' location size required.  
Damage to improvements: Slight  
Conflict with existing land use/values Slight, surface use appears to be grassland.  
Mitigation  
☐ Avoid improvements (topographic tolerance)  
☐ Exception location requested  
☒ Stockpile topsoil  
☐ Stream Crossing Permit (other agency review)  
☒ Reclaim unused part of wellsite if productive  
☐ Special construction methods to enhance reclamation  
☐ Other \_\_\_\_\_  
Comments: Access will use existing county roads, #330. Will construct new road into this location, about 4396' into location. No special concerns

### Health Hazards/Noise

(possible concerns)  
Proximity to public facilities/residences: None nearby, no residences within 1 mile or further in any direction from this well site.  
Possibility of H<sub>2</sub>S: Slight  
Size of rig/length of drilling time: Triple drilling rig/short 30 to 40 days drilling time  
Mitigation:  
☒ Proper BOP equipment  
☐ Topographic sound barriers  
☐ H<sub>2</sub>S contingency and/or evacuation plan  
☐ Special equipment/procedures requirements  
☐ Other: \_\_\_\_\_  
Comments: Operational BOP and adequate surface casing should mitigate any concerns.

### Wildlife/recreation

(possible concerns)  
Proximity to sensitive wildlife areas (DFWP identified): None identified.  
Proximity to recreation sites: None  
Creation of new access to wildlife habitat: No

Conflict with game range/refuge management: No

Threatened or endangered Species: Species identified as threatened by the USFWS are Pallid Sturgeon, Interior Lease Tern, Piping Plover and Whooping Crane. Species listed as candidate species are the Greater Sage Grouse and Sprague's Pipit. NH tracker website lists no species of concern in the Township and Range.

Mitigation:

☐ Avoidance (topographic tolerance/exception)

☐ Other agency review (DFWP, federal agencies, DSL)

☐ Screening/fencing of pits, drillsite

☐ Other: \_\_\_\_\_

Comments: On private surface grassland. No concerns

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### Historical/Cultural/Paleontological

(possible concerns)

Proximity to known sites None identified

Mitigation

☐ avoidance (topographic tolerance, location exception)

☐ other agency review (SHPO, DSL, federal agencies)

☐ Other: \_\_\_\_\_

Comments: On private surface grassland.

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### Social/Economic

(possible concerns)

☐ Substantial effect on tax base

☐ Create demand for new governmental services

☐ Population increase or relocation

Comments: No concerns.

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### Remarks or Special Concerns for this site

Well is a 919,534'MD/10,104'TVD single lateral horizontal Bakken Formation.

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### Summary: Evaluation of Impacts and Cumulative effects

No long term impacts expected. Some short term surface impacts will occur.

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I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the

human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/Steven Sasaki  
(title:) Chief Field Inspector  
Date: March 24, 2011

Other Persons Contacted:

Montana Bureau of Mines and Geology, GWIC  
website  
(Name and Agency)  
Richland County water wells  
(subject discussed)  
March 24, 2011  
(date)

US Fish and Wildlife, Region 6 website  
(Name and Agency)  
ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES MONTANA  
COUNTIES, Richland County  
(subject discussed)

March 24, 2011  
(date)

Montana Natural Heritage Program Website (FWP)  
(Name and Agency)  
Heritage State Rank= S1, S2, S3, T25N R55E  
(subject discussed)

March 24, 2011  
(date)

If location was inspected before permit approval:

Inspection date: \_\_\_\_\_

Inspector: \_\_\_\_\_

Others present during inspection: \_\_\_\_\_